

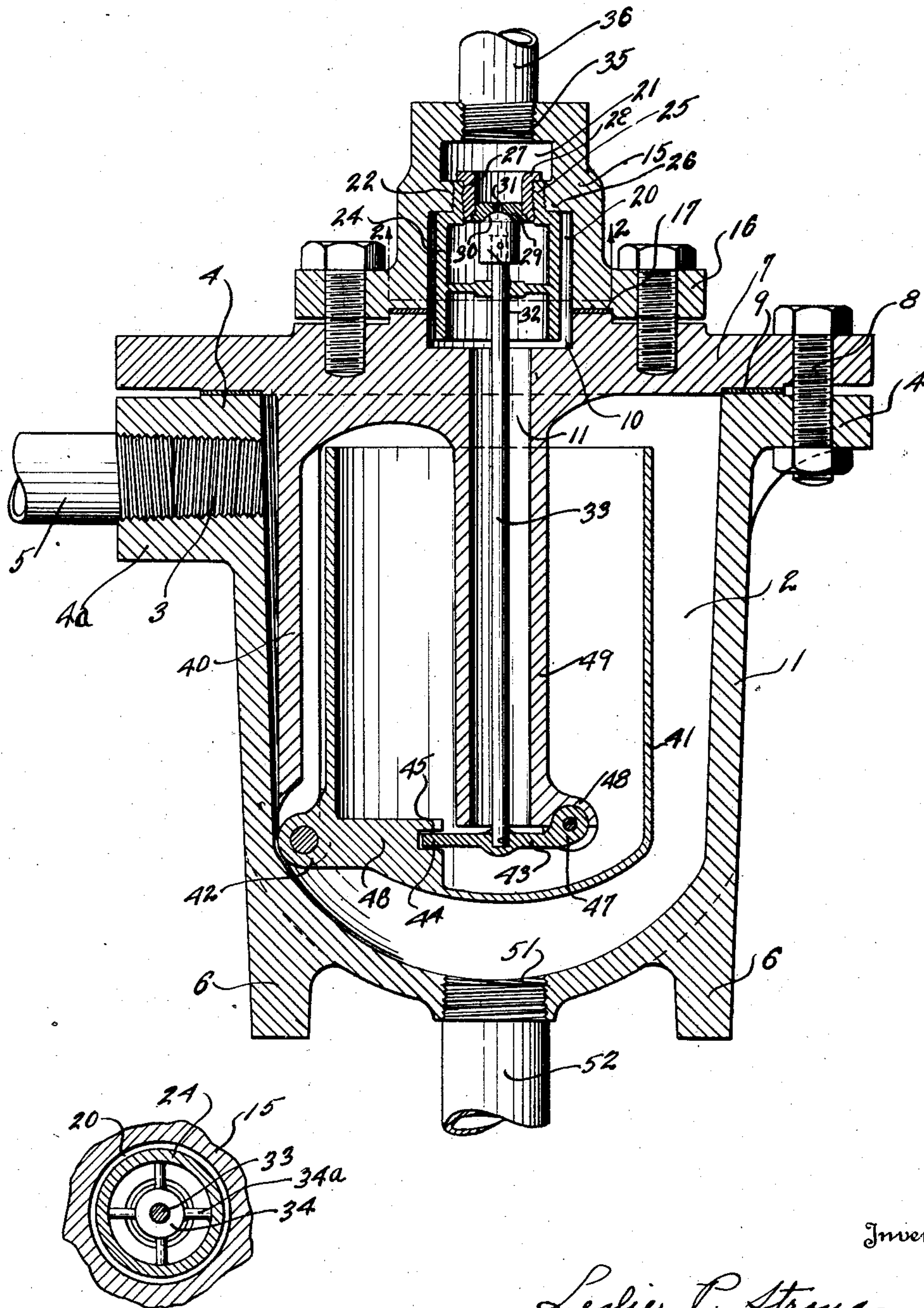
Oct. 7, 1930.

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1,777,507

STEAM TRAP

Filed Oct. 27, 1927



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STEAM TRAP

Application filed October 27, 1927. Serial No. 229,096.

This invention relates to improvements in steam traps and has for its general object the provision of an improved steam trap which is of simple and inexpensive construction; in which all parts of the trap, and particularly those parts most susceptible to wear, are readily accessible for inspection, repair, or replacement; in which the discharge valve and its operating float are so interconnected that proper operation of said valve by said float is insured; and which trap is efficient in use and not likely to get out of order in service.

Further objects of the invention are in part obvious and in part will appear more in detail hereinafter.

In the drawings, which represent one suitable embodiment of the invention, Fig. 1 is a central vertical sectional view of my improved steam trap and Fig. 2 is a detail cross sectional view on the line 2—2, Fig. 1.

The steam trap illustrated in the drawings includes a casing 1 having a substantially cylindrical float chamber 2 open at its upper end and into which water, steam and air are adapted to flow through a laterally extending opening 3. Said opening is located in an enlargement 4^a of the laterally extending casing top flange 4, said opening being threaded to receive an inlet pipe 5. The casing is adapted to be supported on feet 6, preferably cast integral therewith.

A main cover member 7 is provided for the upper end of the float chamber, being removably secured to the casing top flange 4 by any suitable means, such as the bolts 8, an annular gasket 9 being preferably interposed between said casing flange and the cover member to seal the float chamber. Said main cover member is provided with a centrally disposed, vertically extending passage having an upper portion 10 of larger diameter than that of a lower portion 11. Said passage is covered by a supplemental cover member or cap 15 of substantially cylindrical form and provided with an annular base flange 16 bolted or otherwise removably secured to the main cover member, an annular gasket 17 being preferably interposed therebetween.

Said supplemental cover member is also provided with a centrally disposed, vertically extending passage having a lower portion 20, an upper portion 21, and an intermediate portion 22. The passage portion 20 is of substantially the same diameter as that of the passage portion 10, said portions being in vertical alignment and together providing a chamber for a tubular valve stem guide 24. Said guide is provided with an upper end portion 25 of reduced diameter which lies within the intermediate passage portion 22, being threaded or otherwise removably secured to the inwardly extending flange 26 surrounding said passage portion.

The upper end portion 25 of said guide is also internally threaded to receive a tubular supporting member 27 having its upper end 28 bent outwardly over the guide upper end portion 25, and having its lower end portion adapted to removably receive a valve seat 29 having a concave valve engaging surface 30. Said valve seat is provided with a centrally disposed outlet port 31 adapted to be closed by the convex upper end of a valve 32 pinned or otherwise suitably mounted upon the upper end of a vertically disposed valve stem 33 extending down into the float chamber 2. The guide member 24 is provided intermediate its ends with a central guide ring 34 through which the valve stem passes, said ring being connected to the cylindrical side wall of the guide member by radial arms 34^a. The top wall of the supplemental cover member is provided with an opening 35 leading to the upper passage portion 21 and threaded to receive an outlet or discharge pipe 36 for carrying away the water delivered to the float chamber 2.

The main cover member 6 is provided on its lower surface with an arm 40 extending down into the float chamber 2 at one side thereof, said arm being preferably arranged in front of the inlet opening 3 so as to serve as a deflector for the steam, air and water entering the chamber. On the lower end of said arm is pivotally mounted a cup-shaped float 41 provided at its base with a laterally extending ear 42 for connection to said arm. Instead of having the valve stem 33 secured

directly to the float 41 for actuation thereby, said valve stem has its lower end pivotally connected to the intermediate portion of a lever 43 which in turn is actuated by the float 41, thereby effecting a more positive and satisfactory movement of the valve. In the specific embodiment of the invention here illustrated, one end portion 44 of said lever extends into a slot 45 in a thickened portion 46 of the float 41. The other end 47 of said lever is pivotally connected to a laterally extending ear 48 on the lower end of a tube 49 surrounding the valve stem 33 and depending from the lower surface of the main cover member 6. Preferably, said tube and the depending float supporting arm 40 are formed integral with the main cover member 6.

The steam trap operates generally in the same manner as other traps of this type, the steam, air and water entering the float chamber 2 through the inlet opening 3. So long as steam enters said chamber, the float 41 will be maintained in raised position and the outlet port 31 will be closed by the valve 32. However, when water enters the chamber and the float 41 therein, said float is lowered, the outlet port 31 is opened and the water is forced from said chamber, as will be readily understood.

Preferably, and as shown, an opening 51 is provided in the bottom wall of casing 1 and said opening is threaded to receive a blow off pipe 52.

What I claim is:

1. A steam trap, comprising a chambered casing open at its top and having a generally cylindrical side wall provided with an inlet opening near its upper end, said casing also having a bottom wall, a cover structure for the top of said casing having a centrally disposed integral tubular portion extending down into the chamber of said casing and also having at one side of said tubular portion an integral arm also extending down into said casing chamber, said arm being of substantially the same length as said tubular portion and lying closely alongside said casing side wall in front of and therefore baffling said inlet opening, said cover structure being also provided with a discharge opening located directly above and communicating with the upper end of the interior of said tubular portion, a valve for said discharge opening, an operating stem for said valve extending down through said tubular portion, a bucket type float in the chamber of said casing and pivoted at one side of its lower end to the lower end of said arm, a generally horizontally disposed lever having one of its ends pivoted to one side of the lower end of said tubular portion, its intermediate portion extending substantially diametrically across said tubular portion and its other end loosely fitting in a cavity inside said float

adjacent the bottom thereof, whereby said valve is operated by movement of said float.

2. A steam trap, comprising a chambered casing open at its top and having a generally cylindrical side wall provided with an inlet opening near its upper end, said casing also having a bottom wall, a cover for the top of said casing having a centrally disposed integral tubular portion extending down into the chamber of said casing and also having at one side of said tubular portion an integral arm also extending down into said casing chamber, said arm being of substantially the same length as said tubular portion and lying closely alongside said casing side wall in front of and therefore baffling said inlet opening, said cover being also provided with an opening therethrough located directly above and communicating with the upper end of the interior of said tubular portion, a cap secured to said cover and covering the opening thereof, said cap also having an opening therethrough located directly above and communicating with said cover opening, a valve for said cap opening, an operating stem for said valve extending down through said cover opening and through said tubular portion, a bucket type float in the chamber of said casing and pivoted at one side of its lower end to the lower end of said cover arm, a generally horizontally disposed lever having one of its ends pivoted to one side of the lower end of said tubular portion, its intermediate portion extending substantially diametrically across said tubular portion and its other end loosely fitting in a cavity inside said float adjacent the bottom thereof, whereby said valve is operated by movement of said float.

3. A steam trap as set forth in claim 1, characterized in that the bottom wall of said casing is provided with a centrally disposed blow off opening.

4. A steam trap as set forth in claim 1, characterized in that said float has an integral ear at one side of its lower end for pivotal connection to said arm and in that said float has a thickened bottom portion at one side in which said lever end receiving cavity is located.

In testimony whereof I hereby affix my signature.

LESLIE P. STRONG.